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Canadian Unemployment in Retrospect: 1977-87

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The findings of this paper are the personal responsibility of the author and, as such, have not been endorsed by the Members of the Economic Council of Canada.

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Foreword

The research presented in this working paper adopts a perspective that is not often emphasized in discussions of the unemployment rate, and it raises several issues for the conduct of policy that would otherwise not be readily apparent. The author relies upon a series of surveys conducted by Statistics Canada to examine the total amount of time that individuals spend unemployed during a given year – what he terms the "annual unemployment experience" of the individual. This permits an analysis of the way in which the burden of the total time spent unemployed is distributed, and how this distribution has changed over the course of the business cycle.

The author finds that the small minority of labour force participants that become long-term unemployed account for the great proportion of all time spent unemployed. He traces developments over the course of the business cycle, and between demographic groups and regions, before going on to suggest that "if the Canadian economy does experience another severe recession, a relatively small percentage of the labour force will shoulder the bulk of the associated costs, and . . . it would be difficult to predict exactly who these unfortunate individuals might be." Among other things, this raises serious equity considerations for policies designed to fight inflation by increasing the unemployment rate.

Miles Corak is a researcher with the Unemployment Issues Group of the Economic Council of Canada.

Judith Maxwell
Chairman

Abstract

The purpose of this paper is to examine the distribution of the total time spent unemployed, and how this distribution has changed during the period 1977-87. The focus of the paper is on the "annual unemployment experience" of an individual, that is, upon the total time spent unemployed during the year. The major questions addressed include: What fraction of the labour force is unemployed longer than six months during the year? For what fraction of the total time spent unemployed during the year do these individuals account? How does this distribution vary across demographic and regional characteristics, and over the course of the business cycle? To what extent can the long-term unemployed be identified? The answers to questions of this sort will permit a greater appreciation of how the burden of unemployment is shouldered, and how this relates to the cyclical state of the economy.

The horizon of 1977-87 is defined for this paper by the available data. The Annual Work Patterns Survey offers information on the total time that an individual spends unemployed during the year. It was conducted for the years 1977-80 and 1982-85. The Labour Market Activity Survey offers similar information for 1986 and 1987. The major results of this research are presented under three headings.

Canada-Wide Developments

For the country as a whole it is found that the average annual unemployment experience increased significantly after 1981, that there was little tendency for it to fall during the recovery, and that these changes can be traced almost entirely to increases in the number of individuals that were unemployed for more than six months during the year.

Sectoral Developments

The distribution of the total time spent unemployed shifted towards males from females during the recession, but reverted to its pre-recession pattern relatively quickly during the recovery. However, the within-gender changes in this distribution have proven to be more persistent than the between-gender changes. For both groups there has been an increase in the proportion of time spent unemployed that is accounted for by those unemployed more than six

months. This distribution has not reverted to pre-recession patterns. The most important between-group changes have occurred along the lines of age. For both genders there has been a shift in the distribution of the total time spent unemployed from the young to the old. The proportion of unemployment accounted for by individuals with a marital status other than married or single has also increased.

There have been significant changes in the distribution of time spent unemployed among the regions. The burden of unemployment has been shifted onto the western provinces. The total time spent unemployed is highly concentrated among the long-term unemployed within all of the regions but particularly so in the Atlantic provinces, Quebec, and British Columbia during the aftermath of the recession.

The Long-Term Unemployed

All of the major changes in the distribution of unemployment involve an increase in the number of individuals unemployed for more than six months during the year. It appears, however, that all groups, regardless of personal and regional characteristics, experienced significant increases in the probability of long-term unemployment. Important relative changes did occur along the lines of age and education as the standing of prime-aged groups and those with high-school and postsecondary education deteriorated. However, the main point is that no group was immune to the impact of the recession.

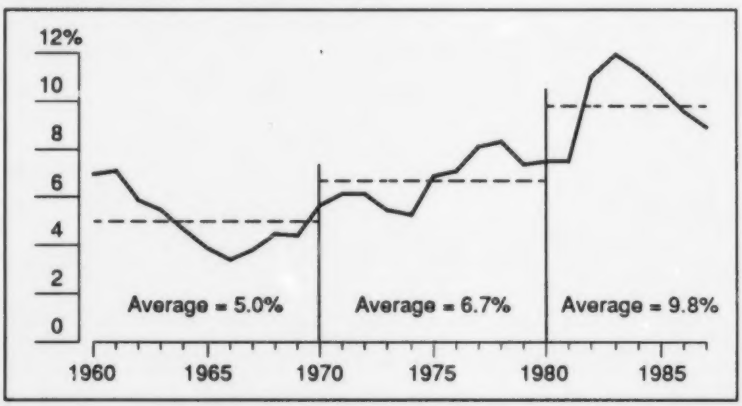
These results suggest that: 1) the costs of unemployment are not distributed equally across the labour force; 2) many of the most significant changes in their distribution over the last decade coincide with the recession of 1981-82; and 3) these changes have been reversed only slowly if at all. Some groups, such as the old and those living in the western provinces, have been affected more than others. In general, however, the changes in the burden of unemployment and the possibility of becoming long-term unemployed affect a minority of the labour force who are difficult to pinpoint. The extent to which developments during the business cycle of the 1980s can be used as a guide for the future is not self-evident. The results would suggest that if the Canadian economy does experience another severe recession, a relatively small percentage of the labour force will shoulder the bulk of the associated costs, and that it would be difficult to predict exactly who these unfortunate individuals might be.

Introduction

There is probably no exaggeration at all in the claim that the past decade has been the most turbulent period of the postwar era for the Canadian labour sector. Increasing and persistent unemployment is the most important manifestation of the shocks that this sector has faced, of the adjustments and maladjustments that have occurred in their aftermath, and of the problems that must be addressed in the future. Chart 1 shows the movement of the aggregate unemployment rate and makes clear that the increases in its level that were established in earlier years have continued unabated. The unemployment rates of the 1980s remain relatively high even when they are compared to the peaks reached during the cyclical downturn of the late 1950s and early 1960s. More noticeable in the data of the decade past is the sharpness and extent of the rise in unemployment at the onset of the 1981-82 recession, and the sluggishness of its decline over the course of the recovery. By the end of 1981 the aggregate unemployment rate had stabilized at 7.5 per cent, but at the end of the decade – after having jumped a full 4 percentage points, after seven years of expansion, and, many analysts believe, at the onset of a slowdown in economic growth – it has just returned to that level.

Chart 1

Unemployment Rate, Canada, 1960-87



These data, however, mask as much as they reveal. Each annual figure is derived from monthly Labour Force Survey (LFS) estimates of the number of individuals unemployed at a point in time: it is an average of a series of monthly snapshots. Stock measures of this kind establish an individual's labour

force status at a given point in time, but they cannot directly address issues concerning the individual's experience over a span of time, such as the amount of time an individual spends unemployed over a particular period, or how equally the burden of total time spent unemployed is distributed across the labour force. Issues of this sort are important for individual welfare and for the conduct of policy. For example, there has been much recent comment upon the costs and benefits of conducting monetary policy so as to reach zero inflation [Lipsey, 1990; Lucas, 1989]. Most observers recognize that some cost will have to be paid in terms of reduced output and higher unemployment if such a policy is pursued. However, the manner in which these costs are distributed is not often discussed. A zero inflation policy would be more acceptable if the costs of unemployment were distributed equally across the population – or at least if the individuals benefiting from lower inflation were also the individuals paying the costs in higher unemployment – than if the costs of unemployment were shouldered in an arbitrary manner by a small minority of the labour force. The use of Labour Force Survey measures of unemployment in conjunction with an Okun's law calculation of the associated output loss are mute on distributional matters of this sort.

In contrast with the Labour Force Survey, the Annual Work Patterns Survey and the Labour Market Activity Survey are concerned with unemployment over a span of time and they offer an opportunity to address matters of this very sort. The AWPS has been conducted each January for the years 1977 through 1985 and requires its respondents to recall their labour force experience over the course of the year; the LMAS has continued this pattern of questioning for 1986 and 1987. Together these surveys permit an examination of the labour sector through a series of one-year windows that reach from 1987 back to the beginning of 1977.

The purpose of the present paper is to offer a descriptive overview of developments in Canadian unemployment by use of these data sources. The major focus of the paper is on the "annual unemployment experience" of an individual. This variable is not necessarily the same thing as the duration of a particular spell of unemployment. It may be that a respondent to a particular survey accumulated six months of unemployment over the course of a year by spending six consecutive months unemployed, or by spending six distinct one-month periods unemployed. In the present context these two alternatives are treated as if they had the same implications for the individual's welfare and are not therefore distinguished analytically. The paper addresses the distribution of the total time spent unemployed during the year and provides tabulations of how the burden of unemployment is shared as well as how this distribution has changed over the course of the last decade or so. It is a retrospective in two ways: it brings together results that span the last decade, but more importantly it does so by using recall data. The major results may be summarized under four broad headings.

Canada-Wide Developments

A new unemployment rate is derived and compared with the unemployment rate from the Labour Force Survey. The results of this comparison suggest that not only is there more unemployment, but that this unemployment is also more serious to those who experience it. In addition, it is found that the total burden of the time spent unemployed is very concentrated. In any given year the small minority of the labour force that spends more than six months unemployed accounts for a disproportionate share of the total time spent unemployed. The changes in this distribution that coincided with the 1981-82 recession have not been reversed during the subsequent recovery.

Demographic Developments

The distribution of the total time spent unemployed shifted towards males from females during the recession, but reverted to its pre-recession pattern relatively quickly during the recovery. However, the within-gender changes in this distribution have proved to be more persistent than the between-gender changes. For both groups the burden of unemployment has shifted onto those unemployed more than six months and has not reverted to pre-recession patterns. The more important between-group changes have occurred along the lines of age. For both genders there has been a shift in the distribution of the total time spent unemployed from the young to the old. This shift coincided with the recession and is only slowly being reversed.

Regional Developments

There have been significant changes in the distribution between the regions of time spent unemployed. The shocks experienced by the labour sector over the last decade have been non-neutral and have had the effect of shifting the burden of unemployment onto the western provinces, making all regions more alike in the process. The total time spent unemployed is highly concentrated within all of the regions, but particularly so in the Atlantic region and in Quebec.

Long-Term Unemployment

All of the major changes in the distribution of unemployment involve an increase in the number of individuals unemployed for more than six months during the year. The proportion of the labour force and of the unemployed that falls into this category increased at the onset of the recession and has fallen only slightly during the recovery. A multivariate descriptive regression highlights the fact that all groups, regardless of personal and regional characteristics, experienced significant increases in the probability of long-term unemployment. Important relative changes occurred along the lines of

age and education as the standing of prime-aged groups and those with high-school and postsecondary education deteriorated.

In the presentation of these results the emphasis is on description rather than interpretation. A full understanding of the reasons for these developments requires an analysis of the determinants of the incidence and the duration of unemployment spells. These issues are investigated in Corak [1990*a*; 1990*b*]. The results suggest that the costs of unemployment are not distributed equally across the labour force, that many of the most significant changes in their distribution over the last decade are coincident with the recession of 1981-82, and that these changes have been reversed only slowly, if at all. Attempts to explain the persistence in aggregate unemployment rates must also account for these distributional developments.

The body of the paper consists of four sections. The first discusses the data sources in greater detail, reviews the existing literature that has employed similar data, and outlines the methods to be employed in the current paper; the second presents the results at the Canada-wide level; the third offers a discussion of demographic and regional developments; and the fourth deals with an assessment of the characteristics of the long-term unemployed, defined throughout as those individuals with annual unemployment experiences in excess of six months. The concluding section offers a summary and briefly draws out the implications of these results for some recent explanations of the persistence in the aggregate unemployment rate and the conduct of macroeconomic policy.

Data Sources, Literature Survey, and Methodology

Both the Annual Work Patterns Survey (AWPS) and the Labour Market Activity Survey (LMAS) may be said to yield "retrospective" data because both rely upon the ability of their respondents to recall their labour force behaviour over the course of the past year. The purpose of the AWPS is to provide flow information on the labour sector activities of individuals throughout the year. It offers information on the timing, incidence, and duration of spells of employment, unemployment, and non-participation. It has been conducted for the reference years 1977-85 with the exception of 1981 when it was temporarily replaced by the Survey of Work History. For each *month* of the year the respondent is classified as being in one of five possible labour force states: 1) employed all month; 2) unemployed all month; 3) not-in-the-labour-force all month; 4) employed-unemployed during the month; or 5) employed-not-in-the-labour-force during the month. The LMAS is conducted in a similar manner, but is much more detailed in the information it obtains. It assigns one of four labour force states – employed, unemployed

with search, unemployed without search, or not-in-the-labour-force – for each *week* of the year. Both surveys are administered to all but the first rotation groups of the January LFS.[1]

The two surveys have been rendered comparable for the purposes of the present paper by: 1) restricting the AWPS sample, which consists of individuals aged 15 years and over, to individuals aged 17-69 years, the age group of the LMAS sample; 2) assigning 2.17 weeks of unemployment to those observations with monthly labour force states of employment-unemployment in the AWPS by assuming that there are 4.33 weeks per month, and by measuring all data on unemployment in months. Further, an important caution is needed in interpreting the results presented for 1977. The questionnaire employed in this first AWPS was subsequently changed in order to reduce the recall burden on respondents. These changes imply that the 1977 results are not fully comparable with those of the remaining surveys.[2]

This caution also holds for the 1986-87 results, not only because the LMAS is a very different survey from the AWPS, but also because the two-year panel version is being used. Thus the 1987 results are derived from information on the same set of individuals as the 1986 results. This implies, among other things, that the individuals in the 1987 sample are all one year older, and hence not strictly comparable to the sample of 17-69 year olds used for the earlier years.

The most important limitation of all of these data is the possibility of "recall bias." Statistics Canada [1982, pp. 60-63 and Chart 3] reports significant differences between stock measures of unemployment derived from AWPS data and those derived from the LFS. For the 1978-80 period, AWPS estimates of those unemployed all month were 18 to 20 per cent below LFS estimates of the number unemployed, while AWPS estimates of those unemployed at some time in the month ranged from 5 per cent below to 1 per cent above the LFS measures. These differences are attributed to imperfect recall. Horvath [1982] also discusses the issue with respect to the Work Experience Survey (WES), the equivalent U.S. survey. The extent of recall errors in the LMAS is expected to be considerably less than that of the AWPS because of differences in the design of the questionnaire. This is another reason why there may be need for caution when comparing the 1986 and 1987 results with those of earlier years.

Beach and Kaliski [1984, pp. 10-20] pay particular attention to the biases inherent in AWPS data and develop adjustments for them. In addition to recall bias, they correct for censoring, truncation, and seasonality biases. These adjustments are important because their work is concerned with the derivation of estimates of completed unemployment spell lengths [Beach and Kaliski, 1987; 1985; 1984]. They examine the relative shares of the total time spent

unemployed accounted for by spells of various lengths, and assess the way in which this distribution differs according to demographic and regional characteristics, as well as the way in which it changes cyclically. Their analysis is restricted to AWPS data for 1978, 1980, and 1982. They establish that the total time spent unemployed is heavily concentrated in the longest spells – the longest 20 per cent of spells always accounting for more than 50 per cent of all time spent unemployed – and that this distribution uniformly shifted towards greater concentration during the cyclical downturn of 1982. For present purposes it should be noted that the correction used for recall bias is the same for each year studied and is an important adjunct, since the paper is concerned with completed spell durations.

Akerlof and Yellen [1985] actually use the extent of underreporting in the recall data as an analytical tool to gauge the seriousness, or, in their terms, "the salience," of unemployment. On the basis of psychological theory they argue that better recall of an event is, for the most part, associated with greater salience. They derive an unemployment rate from information in the WES and suggest that the ratio of this measure to the stock measure from the Current Population Survey, the U.S. equivalent of the LFS, is an indication of the severity of unemployment. They describe pro-cyclical movements in this ratio, a secular decline, and cross-sectional variations that appear to be associated with relative financial responsibilities and hence consistent with the salience hypothesis: females and youths of both genders tend to have poorer recall than prime-aged men. The most notable difficulty with the Akerlof-Yellen hypothesis is the fact that much of the information in these surveys is collected by proxy; households are interviewed and a single individual may be responsible for providing information on all members of the household. The observed pattern of recall, therefore, reflects the salience of unemployment to that household member rather than to the individual actually experiencing the unemployment.

The present paper makes no correction for recall bias in the manner of Beach and Kaliski because the main concern is not with the derivation of completed spell durations, and because an attempt is made to examine the Akerlof-Yellen hypothesis. Indeed, the Akerlof-Yellen result, that there is cyclical variability in the extent of recall, suggests that Beach and Kaliski should have adjusted their data with a different correction factor for each year studied.

Beach and Kaliski [1986*a*; 1986*b*] examine the distribution of annual unemployment experience using the same methodology employed with completed spell durations, but without any adjustments to the data. In brief, this involves ranking the individual observations by their annual unemployment experience, dividing the ranking into decile levels, and then determining the fraction of total time spent unemployed accounted for by each decile level.[3] For example, they find that total time spent unemployed is heavily concentrated

in the longest 20 to 30 per cent of all annual experiences, and that although there are some differences in this pattern between groups, it continues to hold regardless of how finely the data are divided along demographic and regional characteristics. They also find that the proportion of total time unemployed accounted for by the longest decile level tends to vary counter-cyclically. As the aggregate unemployment rate rises, the share of total time spent unemployed accounted for by the longest 30 per cent of annual unemployment experience falls, and the share of the shortest 30 per cent increases. This is in contrast with the behaviour of spell durations.

By examining the total annual unemployment experience of the individuals in their sample, Beach and Kaliski address the same concern as the present paper. However, the focus of their attention is upon the relative distribution of the burden of unemployment, while the major issue of concern here is the pattern of change in the actual decile levels and the fraction of unemployment accounted for by those unemployed for pre-specified lengths of time. It may well be that the *relative* share of total unemployment accounted for by the longest 30 per cent of unemployment experiences declines as the aggregate unemployment rate rises, but this is not to deny that this group experiences more unemployment or that the proportion of annual unemployment experiences exceeding a particular level, for example, six months, rises [Beach and Kaliski, 1986*b*, p. 321].

Clark and Summers [1979], Hasan and de Broucker [1985; 1982], Murphy and Topel [1987], and OECD [1988] have made use of recall data in this manner, but with the exception of Murphy and Topel they have been concerned with only a limited time horizon. Clark and Summers [1979, pp. 33-39] report results from the WES for 1969, 1974, and 1975 that deal with the percentage of the labour force and the percentage of total time spent unemployed accounted for by those unemployed 1-4 weeks, 5-14 weeks, 15-26 weeks, 27-39 weeks, and 40 weeks or more during the year. They draw inferences concerning the cyclical behaviour of the distribution of unemployment on the basis of developments over just three years, and they offer a gender-age breakdown for only 1974 at a very broad level – by gender for those 16-19 years of age and 20 years and older. During the peak year of 1969 the 1.1 per cent of the labour force that was unemployed for 27 weeks or more – that is, more than six months – accounted for 34.9 per cent of all time spent unemployed. These proportions increased to 4.6 per cent and 54.8 per cent during the trough year of 1975. Tabulations of this kind form a major part of the present paper, but a much more detailed cross-sectional breakdown over a longer time period is provided. This permits, at the least, an assessment of changes in the distribution of unemployment over the course of the entire business cycle, particularly during recovery when the aggregate unemployment rate has been observed to decline only slowly.[4] Hasan and de Broucker [1985; 1982] replicate some of these results using the AWPS, but their results are limited only to the first three years of these data.

Murphy and Topel [1987] offer a comprehensive examination of the U.S. recall data. Their research is concerned with an assessment of trend developments in the annual unemployment experience of individuals over the period 1968-85 and attempts partially to assess the validity of the so-called Lilien hypothesis [Lilien, 1982]. The descriptive parts of their paper could be described as addressing within-group and between-group changes in the burden of unemployment. The extent to which they actually provide evidence to support their conclusions is, however, a moot point. For example, they conclude that "[t]he distribution of unemployment during periods when it is high but stable is very similar to its distribution during periods of low unemployment. The only significant relative changes in the distribution of unemployment occur across geographic regions" [pp. 12-13]; but they do not actually offer tabulations of between- and within-group changes in this distribution, and they appear to base their conclusion on a comparison of unemployment rates for one-way breakdowns of demographic and regional characteristics. This does not reveal how the total time spent unemployed is distributed between these groups, or within these groups by duration category. They also conclude that the trend towards higher unemployment, as well as the fact that this trend is not sector specific, are due to a rise in the incidence of long-term unemployment. Much is made of this "neutrality" result in their questioning of different explanations of unemployment, but it should be noted that this result, indeed all of the results of their paper, are based upon a sample consisting of males 18-64 years of age who were in the labour force for at least 40 weeks during the previous year. It is reasonable to suggest that the conclusions reached by use of such sample selection criteria may not hold when a more representative sample is considered; whatever the validity of Murphy and Topel's conclusions, their results offer only a limited portrait of the functioning of the labour sector.

In summary, the present paper may be described as contributing to the existing literature in the following manner. The decision to focus upon "annual unemployment experience" rather than unemployment spell duration reflects a desire to focus upon the variable most closely linked to an individual's welfare. This is based upon the assumption that the welfare implications of a given number of months of unemployment are the same regardless of whether these months were accumulated over a single stretch of time or over a series of several shorter stretches. This orientation also reflects the purpose of the paper as a descriptive rather than an analytical piece; an explanation of the results will certainly require an examination of the incidence and duration of unemployment spells. This is pursued in Corak [1990*a*; 1990*b*]. The only previous works that have employed the same data set and that have focused on annual unemployment experience are Beach and Kaliski [1986*a*; 1986*b*]. However, in methodology the present work is more akin to Clark and Summers [1979]. The results in the present paper offer comprehensive tabulations of the AWPS that deal with the distribution of the burden of unemployment

according to pre-specified duration intervals. The use of the LMAS to complement the AWPS serves to extend the time horizon of the study beyond any employed in Canada, and beyond that used in Clark and Summers.

Further, given the emphasis on the welfare implications of unemployment, it is appropriate to examine the Akerlof-Yellen hypothesis with Canadian data. Finally, the 10-year horizon of the study permits a charting of developments over the course of the business cycle, and in particular, it permits an illustration of developments in the distribution of unemployment that are associated with the persistence of aggregate unemployment rates during cyclical recovery. This may be of some current interest, since the Canadian economy is thought to be on the verge of another recession and since the benefits and costs of pursuing a tight anti-inflationary policy continue to be debated. In contrast to Murphy and Topel, only very limited selection criteria are employed in the present paper so as to provide a more accurate picture of within-group and between-group developments.

Canada-Wide Developments

The following tabulations summarize the major developments at the national level and are based upon data from the AWPS for the reference years 1977-80 and 1982-85, as well as data from the first panel of the LMAS for 1986 and 1987. To be included in the analysis, an individual must be between 17 and 69 years of age and must have participated in the labour force at some time during the reference year. As mentioned, the comparability of the AWPS data of 1977 with those of subsequent years is suspect because of changes in the questionnaire. This is also true for the LMAS data of 1986-87. The results for these years are presented for the sake of completeness, but their interpretation requires a certain amount of caution. For these reasons the discussion relating to developments over time tends, in what follows, to focus upon the period 1978-85.

Summary Measures

Table 1 presents several summary measures of developments over the sample period. The unemployment rates presented in panels 1a) and 2a) permit an assessment of the salience of unemployment. The first unemployment rate is the LFS measure that is depicted in Chart 1, while the second is derived from the recall data as the total time spent unemployed during the reference year divided by the total time spent in the labour force during the year. The latter measure – which may be referred to as the "retrospective unemployment rate" (R-UR) – is for the most part lower than the LFS unemployment rate (LFS-UR) and displays greater cyclical sensitivity, increasing more during

1980-82 and decreasing more rapidly during the recovery. In the three years before 1981 the ratio R-UR/LFS-UR averaged 0.910, while during the three years after 1982 it averaged 0.972. Following Akerlof and Yellen, this suggests that the seriousness of unemployment to those that experience it increased during the recession and fell only slowly during the course of recovery. Persistence in the aggregate unemployment rate is accompanied by greater salience.[5]

There are two possible explanations for the behaviour of the ratio R-UR/LFS-UR. On the one hand, the salience of unemployment may have increased for all unemployed individuals, while on the other, the pool of unemployed may have changed so as to consist of a larger proportion of individuals for whom unemployment is more painful than the average. Both factors are probably at work, but credence is given to the latter by the data in panel 2b) on the incidence of unemployment. This figure is defined as the number of individuals that were unemployed *at some time during the year* divided by the number of individuals in the labour force *at some time during the year*. If unemployment were purely a stock so that those individuals that were unemployed at some time during the year were unemployed all year, the incidence of unemployment would coincide with LFS-UR. The fact that it is two to three times as great reflects the flow nature of unemployment over the horizon of a year. Panel 2b) reveals a significant jump in this figure between 1980 and 1982, and only slight declines in the subsequent years. This suggests that a large fraction of the labour force that did not normally experience unemployment became unemployed at the onset of the recession. The persistence of the incidence figure over the recovery could be the result of a very gradual movement by this "bubble" of individuals out of unemployment, or it could be due to a relatively quick outflow followed by renewed inflows by other individuals. What is clear is that the recession did not simply lengthen the amount of time that the typically unemployed spent in that state, it also caused many individuals not previously unemployed to become so. If unemployment is more serious to these individuals and if they are therefore able to recall it more accurately, then a possible explanation for the behaviour of R-UR/LFS-UR lies in the changing composition of the pool of unemployed.

Panels 1 and 2 of Table 1 also present four alternative measures of the average duration of unemployment. Summary statistics of this sort have been the subject of considerable comment and controversy in the literature concerned with unemployment spell durations, much of which is relevant in the present case. In order to usefully apply these statistics, the reader must have a clear understanding of their derivation. The statistic in panel 1b) is taken from the LFS and is concerned with the average duration of a spell of unemployment rather than the annual experience of unemployment. Specifically, it deals with the average duration of those spells of unemployment that are in progress at the time that the LFS is administered, and may therefore be referred to as the "average interrupted spell duration." Since the LFS is conducted at

Table 1

Measures of Unemployment and Non-Employment, Canada, 1977-87

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
1. LFS measures of unemployment[1]											
a) Unemployment rate (LFS-UR)	8.1	8.3	7.4	7.5	7.5	11.0	11.9	11.3	10.5	9.3	8.9
b) Average interrupted spell duration (months)	3.35	3.58	3.42	3.39	3.45	4.00	5.03	5.00	5.00	4.69	4.73
2. AWPS measures of unemployment[2]											
a) Unemployment rate[3] (R-UR)	8.0	7.4	6.8	6.9		11.4	11.9	11.0	9.9	8.3	6.7
b) Incidence[4]	21.0	22.2	21.8	21.6		27.9	27.4	26.7	24.3	20.6	18.2
c) Average annual experience of the labour force (months) (AAE-LF)	0.87	0.78	0.71	0.72		1.20	1.25	1.16	1.04	0.91	0.74
d) Average annual experience of the unemployed (months) (AAE-C)	4.15	3.51	3.25	3.35		4.29	4.56	4.35	4.17	4.40	4.08
e) Average annual experience of the unemployed at a point in time (months) (AAE-U)	6.27	5.99	5.71	5.88		6.83	7.13	7.05	6.84	7.17	6.87

1 From Statistics Canada, *The Labour Force*, Cat. No. 71-001, for all individuals 15 years and older.
2 For those individuals 17-69 years of age that were in the labour force at some time during the year.
3 Total time unemployed/total time in labour force.
4 Per cent of labour force unemployed at some time during the year.
Source Tabulations from the Annual Work Patterns Survey for 1977-85, and from the Labour Market Survey for 1986 and 1987.

a point in time, the information obtained concerns the length of time a respondent has been unemployed up to the time of the survey but not after; in this sense it concerns "interrupted" spell durations. These data are presented in Table 1 for the sake of completeness.[6]

Panel 2 presents three alternative measures of the average annual experience of unemployment: 1) the average annual unemployment experience of the labour force (AAE-LF), which is derived as the total time spent unemployed during the year divided by the total number of individuals in the labour force at some time during the year; 2) the average annual unemployment experience of the unemployed (AAE-C),[7] which is derived as the total time spent unemployed during the year divided by the total number unemployed at some time during the year; and 3) the average annual unemployment experience of the unemployed at a point in time (AAE-U), which is derived as a weighted average of those unemployed at some time during the year.[8] These three statistics offer a very different picture of the annual unemployment experience of the sample. AAE-LF is always very much less than the other measures, and AAE-U is always the longest measure. The averages over the period 1978-85 are: AAE-LF, 0.98 months; AAE-C, 3.9 months; and AAE-U, 6.5 months. All of the statistics increase significantly after 1980 and peak in 1983, the 67 per cent increase in AAE-LF being most notable. This latter measure, however, also shows the most rapid decline over the recovery: between 1983 and 1985 it fell by almost 17 per cent, while AAE-C fell by 8.6 per cent and AAE-U by only 4.1 per cent.

The differences between these three measures are an indication of the degree of concentration of the total time spent unemployed, and their use without knowledge of the distribution of unemployment is likely to lead to misleading policy implications.[9] For example, if the total time spent unemployed in a given year were distributed equally among the entire labour force, that is, if all the individuals that were in the labour force at some time in the year each spent exactly the same amount of time unemployed, then all three statistics would be the same, they would all have the value of AAE-LF. In this example, the incidence of unemployment would be 100 per cent. The actual observed differences between AAE-LF and AAE-C are a reflection of the fact that only a minority of the labour force experiences any unemployment during the year. In fact, the ratio AAE-LF/AAE-C is simply the incidence figure offered in panel 2b). Similarly, the differences between AAE-C and AAE-U are due to the unequal distribution of total time unemployed among those that do actually experience unemployment. Which of the three figures most accurately reflects the workings of the labour sector? Which figure should be used for the purposes of policy?

There is no simple answer to these questions. Depending upon the nature of the policy being addressed, one or another of the statistics may provide an accurate summary of labour sector developments, or none of the measures may accurately convey these developments. For example, in the conduct of macroeconomic policy it is often believed that there is, at least in the short term,

a trade-off between unemployment and inflation. Society receives the benefits of lower inflation at the expense of higher unemployment. The adoption of an anti-inflationary policy requires, *inter alia*, knowledge of the nature of this trade-off and of how the benefits and the costs will be distributed. The figures for AAE-LF over the period 1980-83 suggest that, on average, each member of the labour force experienced 2.3 more weeks of unemployment during the year than they would have otherwise experienced. This is a relatively short period of time and the implicit assumption is that the burden is spread equally. The figures for AAE-C over this same period suggest that 6 per cent more people became unemployed than otherwise would have, and that those actually unemployed spent on average 5.2 weeks more time unemployed. This is a considerably longer time and its burden is felt by the minority of labour force participants. If it is assumed that the benefits of lower inflation are spread evenly over the population, some policymakers may be inclined to accept the trade-off under the first scenario, but would they also do so under the latter? The two figures offer very different perspectives on developments over this period and therefore suggest that information on the entire distribution of unemployment is needed.

The AAE-U depicts the average amount of time that an individual unemployed at a particular point in time will experience in unemployment over the course of the year. Of the three measures, it is probably the most interesting to policymakers concerned with initiatives that are specific to the labour sector. The figures are very long and suggest that at any point in time sector-specific policies should be designed to deal with the problems of the long-term unemployed.[10] The difference between this figure and the AAE-C is a reflection of the fact that the burden of the total time spent unemployed is not equally distributed even among those that do become unemployed at some time during the year.

These average measures of unemployment do not offer a complete guide to policy, and they beg further questions about the distribution of the time spent unemployed. The nature of this distribution is the subject of the next section.

The Distribution of Unemployment

Table 2 depicts the AAE-LF according to the contribution of each duration category to the overall average and thereby underscores the fact that interesting developments with regard to the distribution of unemployment are masked when one focuses solely upon the overall figure. Table 3 offers the same breakdown for AAE-U.

For example, over the period 1978-80 those individuals unemployed for three months or less contributed on average about 28 per cent to the overall AAE-LF, while those unemployed more than six months contributed almost 43 per cent. In the subsequent period, 1982-85, the average annual unemployment experience of

Table 2

Contributions of Each Duration Category to the Average Unemployment Experience of the Labour Force, Canada, 1977-87

	Duration of unemployment experience					
	0-1 month	2-3 months	4-6 months	7-9 months	10-12 months	Total
1977	0.042	0.16	0.26	0.22	0.19	0.87
1978	0.052	0.16	0.23	0.18	0.17	0.78
1979	0.057	0.15	0.22	0.15	0.14	0.71
1980	0.055	0.15	0.21	0.15	0.15	0.72
1982	0.049	0.18	0.32	0.29	0.36	1.2
1983	0.046	0.17	0.31	0.32	0.41	1.3
1984	0.049	0.16	0.30	0.27	0.38	1.2
1985	0.051	0.16	0.26	0.25	0.32	1.0
1986	0.027	0.12	0.22	0.23	0.31	0.91
1987	0.021	0.12	0.20	0.15	0.25	0.74

SOURCE Tabulations from AWPS for 1977 to 1985, and from LMAS for 1986 and 1987.

Table 3

Contributions of Each Duration Category to the Average Unemployment Experience of the Unemployed, Canada, 1977-87

	Duration of unemployment experience					
	0-1 month	2-3 months	4-6 months	7-9 months	10-12 months	Total
1977	0.20	0.76	1.26	1.02	0.91	4.15
1978	0.24	0.70	1.04	0.79	0.75	3.51
1979	0.26	0.68	1.00	0.68	0.63	3.25
1980	0.25	0.68	0.99	0.71	0.71	3.35
1982	0.18	0.64	1.14	1.05	1.28	4.39
1983	0.17	0.61	1.13	1.18	1.48	4.56
1984	0.19	0.61	1.12	1.02	1.41	5.35
1985	0.19	0.65	1.06	1.00	1.28	4.17
1986	0.13	0.56	1.04	1.13	1.52	4.40
1987	0.12	0.68	1.08	0.83	1.38	4.08

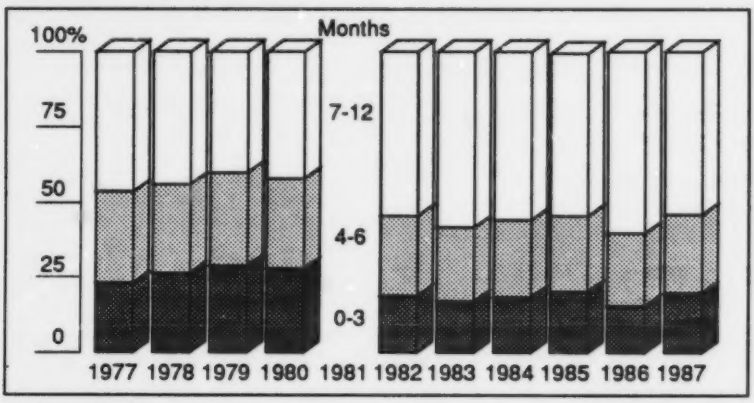
SOURCE Tabulations from AWPS for 1977 to 1985, and from LMAS for 1986 and 1987.

the labour force was higher, but the bulk of the increase was due to the long-term unemployed. The average contribution of those unemployed three months or less actually fell to 19 per cent, while that of the long-term unemployed increased to slightly more than 54 per cent. The overall movement in AAE-LF is due almost exclusively to a shift in the distribution of unemployment towards those individuals that were unemployed for the longest period of time. Exactly the same pattern holds for the average annual unemployment experience of the unemployed.

Chart 2 depicts the percentage of total time spent unemployed that is accounted for by each duration category. The shares of each category, particularly those of the longest, are relatively stable during the period 1978-80: those individuals unemployed for three months or less accounted for about 28 per cent of the total time spent unemployed during this period, while those unemployed for 7 to 12 months accounted for about 42 per cent. The major change in the data occurs over 1980-82. During 1982-85 the shortest duration category accounted on average for 18.4 per cent of total time spent unemployed, while the longest category accounted for slightly more than 56 per cent, on average.

Chart 2

Distribution of Total Time Unemployed, by Duration Category, 1977-87



The data used in constructing Chart 2 are taken from the last panel of Table 4. This table presents the distribution of the labour force, of the number unemployed, and of the total time spent unemployed by duration category. It illustrates the extent of concentration of unemployment and changes in this concentration over time. Unemployment is highly concentrated in each year

Table 4

Distribution of Annual Unemployment Experience, Canada, 1977-87

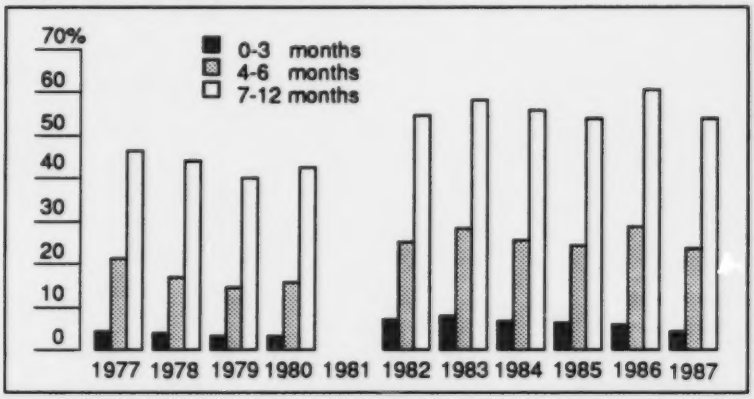
	1977	1978	1979	1980	1982	1983	1984	1985	1986	1987
					(Percentage of the labour force)					
Months of unemployment:										
None	79.0	77.8	78.2	78.4	72.1	72.6	73.3	75.0	79.4	81.8
≤ 1	4.2	6.6	7.3	7.1	6.2	5.7	6.3	6.0	4.3	3.6
2-3	6.8	6.9	6.7	6.6	7.9	7.3	7.2	7.3	5.6	6.0
4-6	5.5	4.9	4.7	4.6	6.7	6.5	6.3	5.6	4.7	4.3
7-9	2.8	2.3	1.9	1.9	3.8	4.2	3.5	3.2	3.1	2.0
10-12	1.7	1.5	1.2	1.4	3.2	3.6	3.3	2.9	2.8	2.2
					(Percentage of the number unemployed)					
≤ 1	20.0	29.8	33.3	32.6	22.3	20.9	23.6	24.2	21.0	19.8
2-3	32.2	31.0	30.6	30.6	28.4	26.8	27.1	29.1	27.2	33.1
4-6	26.3	22.2	21.5	21.3	24.1	23.9	23.7	22.4	23.0	23.6
7-9	13.2	10.3	8.9	9.2	13.7	15.2	13.1	12.9	15.1	11.2
10-12	8.2	6.7	5.7	6.4	11.5	13.3	12.5	11.4	13.6	12.2
					(Percentage of total time spent unemployed)					
≤ 1	4.9	6.7	8.0	7.6	4.1	3.7	4.3	4.6	3.0	2.9
2-3	18.3	19.9	20.9	20.4	14.9	13.3	14.1	15.6	12.8	16.8
4-6	30.3	29.5	30.8	29.6	26.5	24.7	25.8	25.3	23.8	26.3
7-9	24.6	22.6	20.9	21.2	24.6	25.8	23.5	23.9	25.8	20.3
10-12	21.9	21.3	19.4	21.3	29.9	32.5	32.4	30.1	34.7	33.7

Source: AWPS for 1977-85; LMAS for 1986-87.

of the sample period. In 1979, when LFS-UR was at its lowest during the period under study, only 3.1 per cent of the labour force was unemployed for longer than six months during the year, and while this group accounted for only 14.6 per cent of the total number of individuals unemployed, they also accounted for 40.3 per cent of the total time spent unemployed that year. Likewise, in 1983, the year that LFS-UR peaked, 7.8 per cent of the labour force were in the long-term unemployed category, accounting for 28.5 per cent of the number unemployed and 58.3 per cent of the total time spent unemployed. Even more concentration is suggested when the 10-12-month-duration category is examined. Chart 3 shows these developments over the sample period. The effect of the 1981-82 recession is marked; more individuals became long-term unemployed and they accounted for more of the total time spent unemployed.

Chart 3

Distribution of Long-Term Unemployed, 1977-87



These results suggest that there has been a structural shift in the distribution of the time spent unemployed that is coincident with the 1981-82 recession. The persistence that is observed in the aggregate unemployment rate is accompanied by a change in the distribution of unemployment such that there are more long-term unemployed and that they account for more of the burden of the total time spent unemployed.

Summary

The examination of recall data that is summarized in this section has highlighted several dimensions in the unemployment of the 1977-87 period that

would not otherwise be apparent. In the first place, this type of data has permitted the derivation of a new unemployment rate that has been referred to as a retrospective unemployment rate. Comparing this measure with the unemployment rate derived from the Labour Force Survey permits an examination of the Akerlof-Yellen thesis with Canadian data. The ratio of these two unemployment rates moves pro-cyclically. A significant increase occurs during the 1981-82 recession and suggests that the rise and persistence in the unemployment rate that are observed in the Labour Force Survey data are more painful to those individuals experiencing them. This underscores the importance of the subsequent results on the distribution of unemployment.

Three different measures of the average annual experience of unemployment are also calculated: the average annual experience of the labour force; the average annual experience of those unemployed some time during the year; and the average annual experience of those unemployed at some point during the year. These statistics are very different and cannot be correctly interpreted without regard to the entire distribution of unemployment. The first suggests an average annual unemployment experience of about one month over the entire sample period, while the third yields an estimate of about 6.5 months. To some extent a focus on a single summary statistic of this sort will be entirely misleading, but depending upon the policy interest, one or another figure may be correct. The differences between them reflect the unequal distribution of unemployment.

The most important dimension of inquiry opened up by the recall data concerns this distribution. It is found that the total time spent unemployed in any given year is heavily concentrated among those individuals that spend more than six months of the year unemployed. It is also found that this distribution shifted significantly at the time of the 1981-82 recession and that there was only a limited reversion to the pre-recession pattern during the recovery. Before the recession, 3.4 per cent of the labour force accounted on average for about 42 per cent of all time spent unemployed, while after 1981 an average of 7 per cent of the labour force accounted for about 56 per cent of total time unemployed. The persistence in aggregate unemployment rates has, therefore, been accompanied by a shift of the burden of unemployment onto those that spend very long periods of time unemployed.

Sectoral Developments

Between-group and within-group developments in the distribution of total time unemployed are charted in the following tables. Demographic developments are discussed first, followed by a breakdown according to region.

Gender, Age, and Marital Status

Table 5 presents the distribution of total time unemployed *between* each age group according to gender. The division between the genders was relatively

Table 5

Distribution of Total Time Spent Unemployed by Gender and Age, Canada, 1977-87

	1977	1978	1979	1980	1982	1983	1984	1985	1986	1987
					(Per cent)					
Males										
17-19 years	10.2	9.5	9.0	9.3	8.04	6.6	6.2	5.9	5.1	5.8
20-24 years	15.3	12.8	13.6	13.5	14.8	15.4	14.1	12.5	11.1	10.3
25-34 years	12.7	13.2	13.7	14.8	16.7	17.8	17.3	17.9	16.7	15.8
35-44 years	6.9	7.6	7.9	7.6	9.4	9.4	9.6	9.7	8.6	9.7
45-54 years	5.7	6.7	6.3	6.5	6.8	6.2	6.4	6.3	6.3	6.5
55-64 years	4.1	5.3	4.5	4.1	4.5	4.7	5.6	5.2	5.5	4.9
65-69 years	0.29	0.44	0.54	0.27	0.39	0.28	0.36	0.21	0.15	0.29
Total	55.2	55.5	55.5	56.0	60.6	60.5	59.4	57.7	53.4	53.5
Females										
17-19 years	8.6	9.0	8.5	8.3	5.8	5.5	4.8	4.2	4.1	4.6
20-24 years	10.8	10.0	10.2	10.6	9.4	9.2	9.0	9.3	8.6	8.6
25-34 years	11.8	12.4	11.4	11.4	11.1	11.6	12.8	12.7	14.8	15.1
35-44 years	6.7	6.6	5.8	6.7	6.8	6.5	7.4	8.7	9.6	9.6
45-54 years	4.6	4.0	4.9	4.7	4.1	4.2	4.2	4.5	5.8	5.0
55-64 years	2.2	2.3	2.5	2.2	2.2	2.4	2.2	2.6	3.7	3.5
65-69 years	0.13	0.09	0.19	0.042	0.091	0.47	0.11	0.16	0.10	0.16
Total	44.8	44.5	44.5	44.0	39.4	39.4	40.6	42.3	46.6	46.6
Both genders										
17-19 years	18.8	18.6	17.6	17.6	13.9	12.1	10.9	10.1	9.2	10.4
20-24 years	26.1	22.8	23.7	24.1	24.2	24.6	23.0	21.8	19.7	19.0

Table 5 (cont'd.)

	1977	1978	1979	1980	1982	1983	1984	1985	1986	1987
					(Per cent)					
25-34 years	24.5	25.6	25.1	26.2	27.8	29.4	30.1	30.6	31.5	30.9
35-44 years	13.6	14.2	14.7	14.3	16.1	15.9	16.9	18.5	18.2	19.3
45-54 years	10.4	10.7	11.2	11.2	10.8	10.4	10.6	10.9	12.1	11.5
55-64 years	6.3	7.6	7.0	6.3	6.7	7.17	5.6	7.8	9.1	8.4
65-69 years	0.42	0.53	0.73	0.31	0.48	0.33	0.47	0.37	0.25	0.45
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

constant throughout 1978-80: males accounted for about 56 per cent of all time spent unemployed. Although this share increased to slightly more than 60 per cent in 1982, it began to fall immediately and had almost returned to its pre-recession level by 1985. Thus, while the division in the total time spent unemployed between the genders is sensitive to cyclical downturns, it is also sensitive to the upswing and does not appear to be an aspect of persistence in the aggregate unemployment rate. The more noticeable between-group changes occur along the dimension of age. Between 1980 and 1982, the share of total time spent unemployed increased for males of all ages except for the very youngest. Further, the share of unemployment accounted for by males 25-44 years old actually increased in each year of the recovery, as did that of the 55-64 year olds. The 45-54 year olds fared best: they suffered the lowest relative increase in their share of total unemployment time between 1980 and 1982, and their share declined quickly during the recovery. The pattern for females is slightly different, reflecting their greater propensity to withdraw from the labour force. However, the most noticeable development also concerns the 25-44 year olds. Between 1980 and 1982 the unemployment share of this group hardly changed. Over the period of the recovery their share increased so that by 1985 it accounted for a greater fraction of total time unemployed than during the pre-recessionary period. This is particularly so for the 35-44-year-old females. The 55-64 year olds had a similar but slightly attenuated experience. The Canada-wide results by age reveal, in general, a shift in the burden of unemployment from the younger to the older groups. Comparing the 1985 data with those of 1980 reveals the share of those 24 years old and younger declining, and those of all other groups increasing, except the 45-54 year olds, whose share stays roughly constant throughout the sample period. These developments are due to changes in both the distribution of unemployment across the groups and the number of individuals in each age group.

Table 6 illustrates the between-group changes in the distribution of total time spent unemployed by gender and marital status. Married males and males with a marital status of "other" were the only groups to experience significant increases in their shares of unemployment between 1980 and 1982. However, with the passing of the recovery, the "other" group of both genders experienced increases in their shares vis-à-vis the pre-recession distribution. Between 1980 and 1985 the share of total time spent unemployed accounted for by males with the status of "other" increased by 40.1 per cent. For females of the same status the percentage increased over the same period by 31.2 per cent, a somewhat smaller but nonetheless significant increase. The most significant decline was experienced by single females; all other groups maintained virtually constant shares over the period. Summers [1986, pp. 351-52 and Table 4] notes broadly similar developments in the U.S. data on unemployment rates by marital status over the 1978-85 period. A shift in the burden of unemployment onto those with a marital status of "other" occurs over the course of the recovery, which may be due either to changes in the number of individuals with this classification, or to a pure shift in the distribution of unemployment.[11]

Table 6

Distribution of Total Time Spent Unemployed by Gender and Marital Status, Canada, 1977-87

	1977	1978	1979	1980	1982	1983	1984	1985	1986	1987
						(Per cent)				
Males	55.2	55.5	55.5	56.0	60.6	60.5	59.4	57.7	53.4	53.5
Married	26.4	27.3	27.9	27.1	30.6	29.8	29.7	28.4	27.4	28.9
Single	26.9	24.9	24.8	26.2	26.7	27.3	26.5	25.4	22.9	20.8
Other	1.92	3.21	2.73	2.77	3.34	3.49	3.24	3.88	3.13	3.77
Females	44.8	44.5	44.5	44.0	39.4	39.4	40.6	42.3	46.6	46.6
Married	26.2	25.3	25.6	24.5	22.4	22.1	23.2	24.5	27.0	27.5
Single	14.2	15.1	14.6	15.1	12.6	12.9	12.5	12.1	13.4	12.6
Other	4.44	4.15	4.35	4.36	4.44	4.42	4.76	5.72	6.21	6.4

Thus the most noticeable between-group changes in the distribution of the total time spent unemployed have occurred along the lines of age and marital status, rather than simply by gender. Table 7 offers another perspective on this development by illustrating that even if there have not been long-lasting changes between the genders, there have been changes in the distribution of unemployment within them. It presents the same information as Table 4, but by gender. Unemployment is concentrated for both groups, but slightly more so for males than females. In 1979, for example, 3.1 per cent of the male labour force experienced more than six months of unemployment and accounted for almost 42 per cent of all the time spent unemployed by males in that year; the equivalent figures for females are 3.2 per cent and 38.6 per cent. However, both groups witnessed a shift in the distribution of unemployment towards the long-term unemployed. These figures peaked in 1983 when 8.7 per cent of the male labour force were long-term unemployed and accounted for 61.1 per cent of total time spent unemployed, and when 6.5 per cent of the female labour force fell into this category and accounted for 54 per cent of the labour force. By 1985 these figures had decreased only slightly for both groups.[12]

Regional Developments

Both between-group and within-group changes are important when a disaggregation by region is pursued. Table 8 outlines the distribution between the regions of total time spent unemployed, and the distribution of the total number of long-term unemployed. Panel 1 of this table illustrates that the period 1978-80 was marked by stability in the distribution of total time unemployed between the provinces. Over this period there is a slight increase in the share of unemployment accounted for by Quebec, and a slight decline in that accounted for by British Columbia. The burden of the recession was felt disproportionately in the western regions, particularly in Alberta and British Columbia. During 1982-83 the unemployment shares of these provinces increased by 50 per cent over their 1980 levels. This pattern has continued over the course of the recovery. As of 1985 the shares of Ontario and Quebec were much lower than they were in 1980, but those of Alberta and British Columbia were much higher than they were before the recession. Only in British Columbia and in the Atlantic region has the share of unemployment increased in every year since 1982. The difference between these two regions, however, is that the Atlantic region experienced a decline in its share between 1980 and 1982 and returned to its 1980 level in 1985, while British Columbia experienced an increase and continued to diverge from its 1980 share.

This pattern is exactly mirrored in the data on the distribution of the long-term unemployed offered in panel 2 of the table. The share of the Atlantic region has roughly returned to its pre-recession level, those of Quebec and Ontario – especially the latter – are lower, and those of all the western regions are higher, particularly those of Alberta and British Columbia. The fivefold change in Alberta's share between 1980 and 1984 is the most notable development.

Table 7

Distribution of Annual Unemployment Experience by Gender, Canada, 1977-87

	1977	1978	1979	1980	1982	1983	1984	1985	1986	1987
					(Percentage of the labour force)					
1. a) Males										
None	82.2	79.4	79.8	79.9	72.0	72.6	73.5	76.1	80.8	82.9
≤ 1	2.8	6.0	6.5	6.1	5.5	5.0	5.7	5.2	3.7	3.3
2-3	5.7	6.3	5.9	5.9	7.5	6.7	6.7	6.3	5.1	5.4
4-6	5.2	4.7	4.6	4.8	7.1	6.9	6.5	5.8	4.7	4.2
7-9	2.6	2.3	1.9	2.0	4.3	4.7	3.9	3.4	3.0	2.0
10-12	1.5	1.4	1.2	1.4	3.6	4.0	3.7	3.2	2.7	2.2
b) Females										
None	73.8	75.6	75.9	76.3	72.0	72.7	73.1	73.7	77.7	80.6
≤ 1	6.5	7.5	8.3	8.4	7.1	6.6	7.1	7.1	5.1	4.0
2-3	8.5	7.8	7.8	7.6	8.5	8.1	7.9	8.4	6.3	6.7
4-6	6.1	5.3	4.8	4.4	6.2	6.1	6.1	5.3	4.8	4.4
7-9	3.0	2.3	1.9	1.9	3.2	3.4	3.0	3.0	3.2	2.1
10-12	2.1	1.6	1.3	1.4	2.7	3.1	2.9	2.4	2.9	2.2
					(Percentage of the number unemployed)					
2. a) Males										
≤ 1	15.7	29.0	32.3	30.2	19.7	18.3	21.4	21.6	19.2	19.2
2-3	31.9	30.4	29.1	29.4	26.7	24.6	25.4	26.4	26.5	31.7
4-6	29.1	22.8	22.9	23.6	25.4	25.2	24.4	24.4	24.5	24.4
7-9	14.8	10.9	9.6	10.1	15.3	17.2	14.8	14.3	15.6	11.8
10-12	8.6	6.9	6.1	6.7	12.9	14.7	14.1	13.3	14.1	12.9

Table 7 (cont'd.)

	1977	1978	1979	1980	1982	1983	1984	1985	1986	1987
b) Females										
≤ 1	24.8	30.8	34.4	35.3	25.6	24.3	26.5	27.2	23.0	20.5
2-3	32.5	31.7	32.4	31.9	30.7	29.5	29.3	32.1	28.1	37.7
4-6	23.3	21.5	19.9	18.6	22.4	22.2	22.7	20.1	21.5	22.8
7-9	11.5	9.5	8.1	8.1	11.5	12.6	11.0	11.3	14.4	10.6
10-12	7.9	6.4	5.3	6.1	9.7	11.4	10.6	9.3	13.1	11.5
					(Percentage of total time spent unemployed)					
3. a) Males										
≤ 1	3.6	6.1	7.2	6.5	3.3	3.0	3.5	3.7	2.6	2.7
2-3	17.3	19.2	19.3	18.8	13.1	11.5	12.5	13.3	12.1	15.4
4-6	31.5	29.5	31.7	31.2	26.2	24.4	24.9	25.6	24.4	26.5
7-9	25.0	23.6	21.8	22.2	25.8	27.3	24.9	24.6	26.1	20.6
10-12	21.6	21.6	20.0	21.3	31.5	33.8	34.2	32.9	34.8	34.8
b) Females										
≤ 1	6.3	7.4	8.9	9.0	5.3	4.8	5.3	5.8	3.5	3.1
2-3	19.5	20.8	22.9	22.5	17.7	16.0	16.4	18.9	13.7	18.3
4-6	28.8	29.5	29.7	27.5	26.9	25.2	27.1	24.9	23.1	26.2
7-9	23.0	21.5	19.9	19.8	22.6	23.5	21.4	22.9	25.4	20.0
10-12	22.4	20.9	18.7	21.2	27.4	30.5	29.8	27.4	34.5	32.5

SOURCE AWPS for 1977-85; LMAS for 1986-87.

Table 8

Distribution of Unemployment between the Regions, Canada, 1977-87

	1977	1978	1979	1980	1982	1983	1984	1985	1986	1987
					(Per cent)					
Distribution of total time spent unemployed:										
Atlantic region	13.5	12.7	12.4	12.6	10.4	10.3	11.3	12.5	14.1	14.5
Quebec	35.6	36.1	36.5	38.1	32.9	32.9	31.1	33.1	29.9	32.5
Ontario	30.9	30.1	31.3	30.6	30.5	29.3	27.5	25.1	25.3	23.9
Manitoba-Saskatchewan	4.9	5.0	4.6	4.7	5.1	5.6	5.5	5.7	6.3	6.4
Alberta	4.6	4.7	4.3	5.0	7.4	8.5	9.1	8.6	9.4	9.6
British Columbia	10.5	11.4	10.8	9.0	13.6	13.3	15.6	15.0	15.0	13.1
Canada	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Distribution of the number of long-term unemployed:										
Atlantic region	16.4	14.9	14.9	14.7	10.9	10.6	12.3	14.1	15.7	16.8
Quebec	39.3	41.8	43.2	45.9	36.2	34.8	32.6	35.3	31.2	34.7
Ontario	28.8	26.6	29.0	26.8	29.4	27.9	25.3	21.3	22.5	19.4
Manitoba-Saskatchewan	3.7	3.8	3.3	3.3	4.1	5.1	4.7	4.8	5.7	5.8
Alberta	2.3	3.2	1.5	1.7	6.0	8.0	8.6	7.9	9.2	9.7
British Columbia	9.5	9.7	7.9	7.6	13.4	13.6	16.6	16.7	15.8	13.7
Canada	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

SOURCE AWPS for 1977-85; LMAS for 1986-87.

Table 9 offers a within-region summary of the distribution of unemployment by presenting data on the percentage of the regional labour force that is long-term unemployed, and the percentage of total time spent unemployed in the region for which they account. There continues to be considerable concentration in the time spent unemployed, and the shift towards greater concentration in the post-1982 period remains evident. The greatest proportions appear to be in the Atlantic region and in Quebec, with the addition of British Columbia for the post-recession period. There are significant changes towards greater concentration in all regions, but the most notable occur in the West, particularly in Alberta and British Columbia. These changes have had the effect of making the regions more alike. For example, the ratio of the highest to the lowest proportions of panel 1 for the year 1980 was 10.4, in 1982 it was 2.7, while in 1985 it was 3.0.[13]

Summary

The disaggregations of the distribution of the annual unemployment experience offered in this section lend support to the view that regardless of how finely or in what directions the data are disaggregated, there continues to be significant concentration in the distribution of the burden of total time spent unemployed.[14]

Within-gender changes in the distribution are found to be more relevant than between-gender changes. However, in both genders there is a significant shift in the distribution of the burden of unemployment from the young to the old, particularly to those 25-44 years of age. There is also a shift onto those of both genders that have a marital status of "other." These changes occur at the time of the 1981-82 recession and they persist throughout the recovery.

Both between-group and within-group changes are noticeable when a disaggregation is pursued at the regional level. Unemployment is heavily concentrated within all of the regions, but the distributions become much more similar in the post-1981 period. During this period, the relative share of total time unemployed carried by Alberta and British Columbia increases significantly.

The Long-Term Unemployed

All of the previous results describe considerable concentration in the distribution of total time spent unemployed, and a shift in this distribution towards the longest duration categories as the aggregate unemployment rate increases and persists at a higher level. Thus, to understand developments in

Table 9

Distribution of Long-Term Unemployment within Regions, Canada, 1977-87

	1977	1978	1979	1980	1982	1983	1984	1985	1986	1987
					(Per cent)					
Proportion of labour force unemployed more than six months:										
Atlantic region	9.42	6.76	5.87	6.12	9.51	10.2	10.2	10.5	11.5	8.90
Quebec	6.68	6.01	5.25	5.86	9.92	10.5	8.73	8.27	7.27	5.78
Ontario	3.41	2.67	2.49	2.55	5.61	5.91	4.65	3.48	3.55	2.18
Manitoba-Saskatchewan	2.01	1.81	1.28	1.42	3.73	5.06	4.02	3.74	4.26	3.15
Alberta	1.17	1.30	0.48	0.59	4.15	6.18	6.05	4.95	5.57	4.32
British Columbia	3.98	3.36	2.26	2.29	8.18	9.31	10.0	9.04	8.75	5.16
Canada	4.51	3.76	3.18	3.37	7.04	7.79	6.84	6.07	5.96	4.26
Proportion of total time unemployed accounted for by those unemployed more than six months:										
Atlantic region	56.4	51.1	48.8	49.8	56.9	58.7	58.6	59.3	66.0	59.7
Quebec	51.7	50.5	48.1	51.5	60.5	62.9	59.0	59.1	64.3	58.9
Ontario	43.4	39.4	37.6	36.8	51.9	54.8	51.2	44.9	52.5	43.4
Manitoba-Saskatchewan	32.8	33.1	26.6	29.4	43.7	51.9	46.4	45.5	54.9	49.3
Alberta	22.9	27.3	12.5	14.2	42.1	53.5	52.7	50.1	58.4	54.0
British Columbia	42.9	38.2	29.5	35.2	54.1	60.4	61.1	52.1	64.4	57.8
Canada	46.6	43.9	40.3	42.4	54.4	58.3	55.9	54.5	60.4	54.1

SOURCE AWPS for 1977-85; LMAS for 1986-87.

this distribution and in the aggregate unemployment rate, it is important to understand long-term unemployment. This section reports results from a multivariate descriptive regression of the characteristics of the long-term unemployed. The results of the previous sections considered individuals as long-term unemployed if they were unemployed for more than six months of the year, regardless of the duration of any particular spell. These results, however, are also one-way classifications and as such do not control for all of an individual's characteristics. The present section rectifies this and also focuses attention upon absolute as well as relative developments. To ensure that the results are consistent over time, the analysis is restricted to the AWPS data for the 1978-85 period.

Description of the Data and Estimation Procedure

The focus in the previous sections on proportions may cause one to lose sight of absolute developments in the data. For example, the claim that the proportion of total time unemployed accounted for by females fell during the recession should not be taken to mean that unemployment for this group has itself fallen, but only that the pattern of adjustment to higher overall unemployment has not been equally distributed between males and females. A similar caution is necessary for the regional results. Tables 10 and 11 underscore the fact that long-term unemployment has increased for both genders and for all regions, albeit more so for some than others. For the country as a whole, the number of long-term unemployed more than doubled between 1980 and 1982 and had not returned to the pre-recession level by 1985. This is the movement that underlies all of the developments outlined in the previous two sections.

These data are derived by using the AWPS sampling weights. For regression purposes the unweighted data are used. However, the reader should be cautioned that because of the stratified sampling procedures used, these data will not necessarily be a random sample of the unemployed, even though this interpretation is at least implicit in what follows. A 0-1 dependent variable is defined for each individual that experienced some unemployment during the year. An individual is given a classification of "1" if he or she was unemployed for more than six months during the year and a classification of "0" otherwise. The sample proportions are summarized in Table 12. The co-variates are, for the most part, related to demographic and regional characteristics, but one demand-side variable – whether the individual was temporarily laid off or not – is also included.[15] Since the dependent variable is binary, an appropriate estimation procedure is maximum likelihood estimation of the logistic function.[16] Consequently, the results should be interpreted as the probability that a randomly selected individual that was unemployed at some point during the year experienced more than six months of unemployment, that is, was among the long-term unemployed.

Table 10

Long-Term Unemployment by Gender, Canada, 1978-85

	1978	1979	1980	1982	1983	1984	1985
Number of long-term unemployed (thousands):							
Males	254	224	244	586	654	576	504
Females	189	164	178	334	334	339	328
Both genders	443	389	422	918	1,031	914	832
Number of long-term unemployed relative to 1980:							
Males	1.04	0.918	1.00	2.40	2.68	2.36	2.07
Females	1.06	0.921	1.00	1.88	2.12	1.90	1.84
Both genders	1.05	0.922	1.00	2.18	2.44	2.17	1.97

SOURCE AWPS for 1978-85.

Table 11

Distribution of the Number of Long-Term Unemployed, Canada, 1978-85

	1978	1979	1980	1982	1983	1984	1985
Number of individuals unemployed more than six months (thousands):							
Atlantic region	66	58	62	100	109	112	117
Quebec	185	168	194	332	359	298	294
Ontario	118	113	113	270	288	231	177
Manitoba-Saskatchewan	17	13	14	38	53	43	40
Alberta	14	6	7	55	82	79	66
British Columbia	43	31	32	123	140	152	139
Canada	443	389	422	918	1,031	931	832
Number unemployed more than six months relative to 1980:							
Atlantic region	1.06	0.935	1.00	1.61	1.76	1.81	1.89
Quebec	0.954	0.866	1.00	1.71	1.85	1.54	1.52
Ontario	1.04	1.00	1.00	2.39	2.55	2.04	1.57
Manitoba-Saskatchewan	1.21	0.929	1.00	2.71	3.79	3.07	2.86
Alberta	2.00	0.857	1.00	7.86	11.7	11.3	9.43
British Columbia	1.34	0.969	1.00	3.84	4.38	4.75	4.34
Canada	1.05	0.922	1.00	2.18	2.44	2.17	1.97

SOURCE AWPS for 1978-85.

Table 12

Sample Distribution of the Unemployed, Canada, 1978-85

	Short-term unemployed[1]		Long-term unemployed[2]	
	Number	Per cent of sample	Number	Per cent of sample
1978	12,566	82.5	2,660	17.5
1979	12,431	84.8	2,227	15.2
1980	12,804	84.3	2,384	15.7
1982	14,575	75.1	4,835	24.9
1983	13,701	72.3	5,259	27.7
1984	13,821	73.7	4,925	26.3
1985	12,780	74.8	4,296	25.2

1 Short-term unemployed refers to those individuals unemployed at some time during the year with six months or less of unemployment experience.
2 Long-term unemployed refers to those individuals unemployed at some time during the year with more than six months of unemployment experience.
Source Derived from AWPS.

Results

The actual results are appended. These are used to derive the probability that an individual with the stated characteristics will be long-term unemployed. Table 13 presents these probabilities.[17] No interaction terms are used, but the fact that the model is estimated for each year separately makes it equivalent to a fully interactive model by year. For the average unemployed Canadian that was not a student at any point over the year, the probability of long-term unemployment increased from 0.121 in 1980 to 0.228 in 1983, or by more than 88 per cent. By 1985 this probability was still 69 per cent above its 1980 value. Males have a higher probability than females throughout the period, and the gap between them increases after 1981.

In one sense the results of Table 13 uphold the neutrality conclusion of Murphy and Topel [1987]: regardless of demographic, educational, or regional characteristics, the probability of long-term unemployment increases significantly after 1980 and falls only gradually after 1983. No group escaped the developments over this period.

Married individuals have a lower probability of long-term unemployment than individuals with a marital status of single or "other" throughout the period under study, with the latter recording the highest probabilities. Except for a

Table 13

Conditional Probabilities of Long-Term Unemployment, Canada, 1978-85

	1978	1979	1980	1982	1983	1984	1985
Canada	0.145	0.118	0.121	0.193	0.228	0.222	0.204
Male	0.159	0.133	0.144	0.243	0.280	0.262	0.245
Female	0.133	0.104	0.101	0.151	0.184	0.186	0.168
Married	0.115	0.105	0.094	0.160	0.190	0.192	0.175
Single	0.164	0.123	0.129	0.198	0.235	0.235	0.213
Other	0.162	0.126	0.145	0.224	0.264	0.240	0.228
Household							
Head	0.129	0.104	0.108	0.173	0.213	0.205	0.189
Non-head	0.163	0.134	0.136	0.214	0.245	0.239	0.220
17-19 years	0.120	0.095	0.102	0.170	0.194	0.163	0.146
20-24 years	0.114	0.094	0.138	0.188	0.213	0.190	0.179
25-34 years	0.131	0.102	0.115	0.181	0.222	0.205	0.199
35-44 years	0.132	0.097	0.123	0.198	0.229	0.206	0.220
45-54 years	0.159	0.114	0.147	0.218	0.244	0.250	0.230
55-64 years	0.183	0.152	0.153	0.232	0.278	0.294	0.265
65-69 years	0.194	0.199	0.107	0.168	0.224	0.261	0.207
Elementary	0.181	0.155	0.147	0.244	0.263	0.254	0.233
High school	0.169	0.138	0.133	0.229	0.263	0.254	0.235

Table 13 (cont'd.)

	1978	1979	1980	1982	1983	1984	1985
Postsecondary	0.144	0.104	0.109	0.190	0.216	0.226	0.185
Postsecondary graduate	0.126	0.102	0.106	0.168	0.215	0.215	0.206
University	0.115	0.099	0.114	0.146	0.191	0.167	0.168
Student	0.033	0.031	0.109	0.053	0.056	0.060	0.055
Newfoundland	0.201	0.180	0.183	0.203	0.238	0.228	0.251
Prince Edward Island	0.184	0.184	0.162	0.216	0.215	0.250	0.249
Nova Scotia	0.179	0.166	0.152	0.219	0.243	0.257	0.254
New Brunswick	0.235	0.227	0.235	0.244	0.268	0.290	0.238
Quebec	0.219	0.195	0.223	0.266	0.280	0.246	0.238
Ontario	0.132	0.122	0.132	0.203	0.221	0.185	0.150
Manitoba	0.121	0.083	0.087	0.154	0.205	0.160	0.140
Saskatchewan	0.086	0.064	0.071	0.122	0.157	0.166	0.160
Alberta	0.054	0.028	0.029	0.127	0.209	0.188	0.155
British Columbia	0.144	0.095	0.100	0.219	0.266	0.277	0.250
Temporary layoff	0.090	0.073	0.072	0.115	0.139	0.130	0.120
Other separation	0.227	0.185	0.196	0.305	0.253	0.352	0.325

SOURCE Appendix.

brief increase during the height of the recession, the gap between the three groups remains about the same. A similar pattern occurs with respect to the household head – non-head category. Unemployed household heads have a lower probability of being long-term unemployed than secondary income earners, and the gap between the two groups is little changed by 1985 in spite of significant increases between 1980 and 1983.

The most notable changes along the lines of age are: significant increases in the probabilities between 1980 and 1983 for 17-19 and 25-34 year olds; changes in the relative standing of the 25-34 and 35-44 year olds vis-à-vis the 20-24 year olds; and relatively slower declines in the probabilities for the 25-34, 35-44, and 55-64 year olds in the post-1983 period. The developments for the 65-69 year olds are also notable, but the results listed in the Appendix make clear that they are not very precise and should be accepted with caution.[18] The highest probabilities are recorded by 55-64 year olds during 1983 and 1984. Taken together, these results illustrate that even when all other characteristics are taken into account, the shift in the burden of unemployment between the age groups noted in the section "Gender, Age, and Marital Status" is reflected in changes in the probability of long-term unemployment. In contrast to these earlier results, the 17-19 year olds – the youngest group – experienced a 90 per cent increase in their probability of long-term unemployment between 1980 and 1983. Except for that of the 25-34 year olds, this was the largest recorded percentage change. However, the probability for this group declined the fastest over the course of the recovery.

The results according to educational level suggest that for the most part those with more education are less likely to be long-term unemployed. However, there are some notable differences in the changes in the probabilities over the period, so that this is only partially so after 1983. The highest increases in these probabilities between 1980 and 1983 were experienced by those with high-school and postsecondary education. While those in the elementary category experienced a 79 per cent increase in the probability of long-term unemployment and those in the university category experienced a 68 per cent increase, those in the high-school category and those with some postsecondary education both witnessed a 98 per cent increase. Postsecondary graduates, however, fared the worst over this period by recording a 103 per cent increase in the probability of long-term unemployment, an increase that was characteristically immune to reversal during the recovery.

The relative standing of those with high-school education and those with elementary education is also of interest. The probabilities listed in Table 13 for these groups reveal that while the former group was well below the latter in the pre-1981 years, there is very little to distinguish the two from 1983 on. Thus, while moving beyond high-school to some form of postsecondary education could reduce an individual's chances of long-term unemployment

by about 5 per cent, should he or she become unemployed, advancing from elementary school to high school has virtually no effect. Interestingly enough, the returns to postsecondary graduation also appear to have deteriorated over the course of recovery: in 1982 postsecondary graduates stood a 2 per cent lower chance of long-term unemployment than non-graduates, but in 1985 their chances were 2 per cent higher. A complete analysis of the role of education in determining the labour force status of an individual would require an examination of its influence upon the incidence of unemployment.

The final result dealing with education concerns the differences between those individuals that claimed student status at some point during the year and those that did not. Students stood a much lower chance of long-term unemployment than the general population. While an individual with the characteristics of the average population had a probability of long-term unemployment ranging from 12 to about 23 per cent over the sample period, a student with the same characteristics had a probability of between 2 and 6 per cent.

The results for the provincial variables mirror the pattern of between-group changes in the distribution of unemployment that was discussed in the section "Regional Developments." The provinces are more alike in the post-recession period than in the pre-recession period. The most significant changes in the probabilities between 1980 and 1983 occurred in the western provinces. Each province west of Ontario recorded an increase of over 100 per cent; in Alberta the increase was sixfold. By 1985 these probabilities remained well above their 1980 level. Ontario and Nova Scotia, with increases of 67 and 60 per cent respectively, were the only other provinces that approached the magnitude of such changes. However, the situation in Ontario had for the most part reverted to its 1980 level by 1985. Interestingly enough, the pattern in Nova Scotia as well as those in Prince Edward Island, Saskatchewan, and slightly less so in Newfoundland, entailed increases in the probability of long-term unemployment in each year of the recovery. In all other cases, except for New Brunswick and British Columbia between 1983 and 1984, the probability decreased in each year after 1983. It is also interesting to note that the results for New Brunswick and Quebec reveal relatively little cyclical variability. Between 1980 and 1983 the probabilities of long-term unemployment rose by 14 and 26 per cent in these two provinces, lower than those of any of the other provinces. Furthermore, by 1985 the probabilities in these provinces had essentially returned to their 1980 levels. Even though all provinces experienced a deterioration in their situation over the period, their patterns of recession and recovery are not at all identical.

The only true demand-side variable to be included in the model is one dealing with the reason for separation. Individuals in the sample were classified according to whether they experienced a temporary layoff at some point during

the year or not. This is only a partial control for the reason for separation. In the AWPS, temporary layoff is defined as an *ex post* concept: individuals are considered temporarily laid off if they in fact return to their previous employer, there being no consideration of whether the individual expects at the time of the separation to return or not. Thus those classified under "other separation" include not only those permanently laid off and those that quit, but also those that thought that they would be rehired by their former employer but in fact were not. The difference between the two categories is significant and widens over the period: it averages about 12 per cent during 1978-80 and about 21 per cent during 1982-85. Also notable is the fact that the probabilities recorded by the "other separation" group during 1984 and 1985 stood at 0.352 and 0.325, the highest probabilities recorded throughout the sample period over all the co-variates.

Summary

These results suggest that the problem of long-term unemployment is widespread. All demographic groups over all regions experienced significant increases in the probability of long-term unemployment between 1980 and 1983, and for the most part these increases were only partially reversed by the recovery.

There are some notable changes in the relative standing of the groups. The situation of the prime-aged groups, the 25-34 and the 35-44 year olds, deteriorated vis-à-vis the other age groups, and the gap between the oldest and the youngest groups widened considerably over the period. Further, those individuals with high-school education experienced significant increases in the probability of long-term unemployment, so much so that their situation became indistinguishable from that of the group with an elementary education. The western provinces also experienced a deterioration in their relative standing that was not reversed by the recovery.

The results also suggest that reason for separation is potentially a very important determinant of the probability of long-term unemployment. The highest probabilities throughout the entire range of variables investigated were associated with the "other separation" category during 1983 and 1984. However, because this variable is not precisely defined in the AWPS, firm conclusions concerning its influence cannot be drawn. Katz and Meyer [1988] examine an administrative data set in the United States and find that those individuals that were expecting to be recalled by their former employer, but in fact were not, tended to have particularly long unemployment spells, much longer than those that quit or those that were correct in their expectation of recall. The present results do not fully confirm this claim, but they certainly do not contradict it.

Conclusion

Using retrospective data of the sort employed in this paper opens vistas onto the functioning of the labour sector that are not visible when one uses stock measures of unemployment. The Annual Work Patterns Survey and the Labour Market Activity Survey have been used to trace the nature of and changes in the distribution of the burden of unemployment. There is considerable concentration of the total annual time unemployed upon the small minority of the labour force that spend the longest time unemployed. Further, the recession and recovery of the 1980s entailed a significant and long-lasting shift of this distribution onto the long-term unemployed. A larger fraction of the labour force experienced more than six months of unemployment within the course of a year and accounted for a larger fraction of total time unemployed. While there have been notable sectoral differences in this development, the most striking feature of the data concerns the widespread nature of these developments. The multivariate regressions that were used to describe the probability of long-term unemployment by demographic characteristics reveal that all groups suffered significant increases and persistence in the possibility of being long-term unemployed.

The main purpose of the paper is descriptive. It is intended as a rétrospect of developments in the labour sector over the last decade from the vantage offered by recall data. Very little attention has been paid to interpretation, but the facts presented have implications for any attempt at explanation: the shift in the distribution of unemployment over the course of recession and recovery is one of the stylized facts that must be accommodated. The cyclical developments in this distribution also underscore the fact that the costs of an anti-inflationary macroeconomic policy are not equally distributed across the labour force. The tendency is for the small minority of labour force participants that become long-term unemployed to account for the great bulk of all time spent unemployed. Further, it is difficult to pinpoint which groups are most prone to long-term unemployment. All individuals, regardless of gender, age, region of residence, and other characteristics experienced significant increases in the likelihood of long-term unemployment during the 1980s. The only exception to this is the increased tendency of the old to become long-term unemployed, and the change in the relative standing across the regions. These may be important issues to consider as the probability of another recession during the early 1990s becomes greater and greater.

Appendix

Appendix

Table A-1

Logit Results for the Probability of Long-Term Unemployment, Canada, 1978-85*

	1978	1979	1980	1982	1983	1984	1985
Variable							
Constant	–1.76	–1.94	–1.63	–0.809	–0.769	–0.958	–1.18
	(0.126)	(0.136)	(0.132)	(0.0914)	(0.0868)	(0.0885)	(0.0954)
Female	–0.209	–0.276	–0.398	–0.596	–0.549	–0.445	–0.476
	(0.0555)	(0.0606)	(0.0585)	(0.0435)	(0.0415)	(0.0419)	(0.0446)
Single	0.414	0.179	0.355	0.262	0.272	0.259	0.244
	(0.0634)	(0.0687)	(0.0657)	(0.0500)	(0.0478)	(0.0477)	(0.0511)
Other marital status	0.401	0.207	0.494	0.419	0.428	0.287	0.330
	(0.0961)	(0.104)	(0.0958)	(0.0725)	(0.0688)	(0.0709)	(0.0709)
Non-head	0.277	0.289	0.264	0.266	0.181	0.200	0.190
	(0.596)	(0.0647)	(0.0616)	(0.0457)	(0.0437)	(0.0440)	(0.0463)
17-19 years	–0.109	–0.0283	–0.204	–0.183	–0.207	–0.277	–0.506
	(0.101)	(0.109)	(0.107)	(0.0822)	(0.0822)	(0.0871)	(0.0939)
20-24 years	–0.162	–0.0292	–0.131	–0.605	–0.0912	–0.105	–0.262
	(0.0843)	(0.0895)	(0.0861)	(0.0641)	(0.0627)	(0.0629)	(0.0658)

Table A-1 (cont'd.)

	1978	1979	1980	1982	1983	1984	1985
25-34 years	–0.114 (0.0744)	0.0555 (0.0795)	–0.0774 (0.0757)	–0.107 (0.0554)	–0.0407 (0.0531)	–0.00936 (0.0533)	–0.128 (0.0548)
45-54 years	0.220 (0.0893)	0.178 (0.0956)	0.210 (0.0919)	0.121 (0.0685)	0.0859 (0.0677)	0.251 (0.0677)	0.0532 (0.0719)
55-64 years	0.390 (0.102)	0.516 (0.110)	0.255 (0.109)	0.203 (0.0817)	0.261 (0.0780)	0.469 (0.0800)	0.243 (0.0816)
65-69 years	0.457 (0.297)	0.840 (0.303)	–0.159 (0.451)	–0.200 (0.304)	–0.0264 (0.302)	0.307 (0.279)	–0.0803 (0.403)
Elementary	0.272 (0.106)	0.459 (0.117)	0.337 (0.113)	0.323 (0.0804)	0.256 (0.0760)	0.154 (0.0774)	0.291 (0.0832)
High school	0.191 (0.0975)	0.318 (0.108)	0.226 (0.103)	0.240 (0.698)	0.259 (0.0652)	0.155 (0.0651)	0.303 (0.0701)
Postsecondary graduate	–0.155 (0.126)	–0.0192 (0.136)	–0.0314 (0.130)	–0.149 (0.0898)	–0.00421 (0.0824)	–0.0675 (0.0825)	0.129 (0.0875)
University	–0.256 (0.157)	–0.0580 (0.170)	0.0460 (0.156)	–0.316 (0.110)	–0.158 (0.103)	–0.373 (0.101)	–0.122 (0.107)
Student	–1.60 (0.0951)	–1.42 (0.102)	–1.97 (0.114)	–1.44 (0.0711)	–1.60 (0.0713)	–1.50 (0.0735)	–1.48 (0.806)

Table A-1 (cont'd.)

	1978	1979	1980	1982	1983	1984	1985
Newfoundland	0.502	0.458	0.390	0.00392	0.0958	0.262	0.643
	(0.0851)	(0.0902)	(0.0903)	(0.0723)	(0.0706)	(0.0730)	(0.0778)
Prince Edward Island	0.393	0.489	0.241	0.0807	–0.0355	0.384	0.635
	(0.126)	(0.133)	(0.137)	(0.105)	(0.107)	(0.104)	(0.110)
Nova Scotia	0.355	0.360	0.163	0.0947	0.122	0.422	0.663
	(0.0967)	(0.100)	(0.0990)	(0.0739)	(0.0755)	(0.0775)	(0.0841)
New Brunswick	0.702	0.752	0.704	0.237	0.250	0.588	0.572
	(0.0865)	(0.0896)	(0.0868)	(0.0702)	(0.0698)	(0.0725)	(0.0779)
Quebec	0.607	0.557	0.635	0.353	0.314	0.361	0.572
	(0.0744)	(0.0769)	(0.0747)	(0.0566)	(0.0577)	(0.0615)	(0.0670)
Manitoba	–0.0986	–0.426	–0.462	–0.335	–0.0978	–0.173	–0.0799
	(0.115)	(0.134)	(0.126)	(0.0831)	(0.0816)	(0.0928)	(0.102)
Saskatchewan	–0.482	–0.699	–0.688	–0.609	–0.422	–0.132	0.0756
	(0.133)	(0.145)	(0.136)	(0.0964)	(0.0853)	(0.0846)	(0.0910)
Alberta	–0.992	–1.56	–1.64	–0.558	–0.0734	0.0158	0.428
	(0.128)	(0.162)	(0.153)	(0.0736)	(0.0678)	(0.0675)	(0.0748)
British Columbia	0.0985	–0.279	–0.313	0.0952	0.243	0.521	0.639
	(0.0915)	(0.0994)	(0.0996)	(0.0643)	(0.0655)	(0.0675)	(0.0738)

Table A-1 (concl'd.)

	1978	1979	1980	1982	1983	1984	1985
Temporary layoff	–1.09 (0.0631)	–1.07 (0.667)	–1.14 (0.0643)	–1.22 (0.0460)	–1.21 (0.0472)	–1.30 (0.0500)	–1.26 (0.0554)

•Table entries are the maximum likelihood estimates of a logit model. The numbers in parentheses indicate the standard error. The omitted categories are: male, married, household head, 35-44 years of age, some postsecondary education, non-student in the current year, Ontario resident, not temporarily laid off during the year.

Notes

1 The AWPS for 1977 was administered to all six rotation groups. Furthermore, the LMAS is truly a panel data set in that the January 1988 questions, dealing with the labour-force activities of the respondents during 1987, were administered to the same set of individuals as the January 1987 questions. This offers a two-year window through which the activities of this panel of individuals may be traced. The present paper does not make use of this information. More detail on the nature of these surveys is provided by Corak [1988*a*], and Statistics Canada [1990; 1982]. It should be noted, for the sake of completeness, that at least three other retrospective surveys of a similar sort have been conducted in Canada for the reference years 1973, 1964, and 1961. The 1974 data are discussed in McIlveen and Sims [1978] and compared with some tabulations from the 1964 survey. The 1964 data are given a detailed analysis along with those of 1961 by Whittingham and Wilkinson [1967] who offer some tabulations similar to those in the present paper. The questionnaires used in these surveys request information on the total time spent unemployed in the previous year without regard to its pattern over the year, which, in fact, is all that the present paper is concerned with. However, it is unlikely that the results are fully comparable with those of this paper because of the changes made to the Labour Force Survey sample in 1975.

2 The changes in the questionnaire are described in Statistics Canada [1982].

3 In effect they are deriving Lorenz curves for the distribution of time spent unemployed. Details on the methodological aspects of their research are provided in Beach and Davidson [1983], and Beach and Kaliski [1986*a*].

4 Summers [1986, p. 355] does report having produced results from the 1978 and 1984 WES. He suggests that the importance of the long-term unemployed continues to increase: those unemployed for 27 weeks or more accounted for 46 per cent and 54 per cent of all time spent unemployed during these two years. He does not report the complete tabulations. In conjunction with the earlier results of Clark and Summers [1979], these data provide an overview of trend developments in the distribution of the burden of unemployment rather than the cyclical pattern. The breakdown by sectors remains very limited.

5 Differences between R-UR and LFS-UR are to be expected for a number of reasons more fundamental than the fact that in the present context the AWPS is restricted to 17-69 year olds, while the LFS sample consists of individuals 15 years and older. These reasons are outlined in Statistics

Canada [1982, pp. 61-62] and deal with differences in the definitions of unemployment between the surveys. They include the following: 1) unpaid absences are considered periods of not working in the AWPS but not in the LFS; 2) the AWPS does not include a direct question on availability for work as does the LFS, so there is a possibility that some unavailable job seekers may be classified as unemployed; and 3) the AWPS does not take future job starts into account, but the LFS will classify a non-job seeker as unemployed if he or she is waiting to begin a job within the next four weeks. The cumulative effect of these differences is not clear, but they are not expected to change over the sample period. Thus, while they may explain some of the differences between R-UR and LFS-UR, they cannot explain changes in the difference over time. It is the changes that are the main interest in the present paper, so it may not be unreasonable to suggest that they are due to differences in recall, and hence salience.

6 Under steady state conditions a point-in-time survey will, on average, capture unemployment spells at their mid-point. Therefore, to obtain a measure of the average completed duration of those *spells in progress at a point in time*, it is appropriate to double the average interrupted duration. The only period during which steady state conditions are likely to have held in the sample period of Table 1 is 1979-81. This suggests an estimate of about 6.8 to 6.9 months for the average completed spell duration. Such results are reported in Hasan and de Broucker [1985, Table 2-7], and broadly similar results are presented by Akerlof and Main [1981, Table 4] for the United States. It is not valid to follow this procedure for any other sub-period of the sample. The reader should also be cautioned that such estimates weight unemployment spells by their length. This introduces a so-called "length bias" that causes completed spell lengths to be overestimated. In actual fact, this bias tends to dominate, so that the average completed spell length tends to be slightly shorter than the average interrupted spell length [see Salant, 1977]. This also implies that such estimates do not accurately reflect the average length of an unemployment spell for those unemployed *over* a period of time. The significance of these different measures is the subject of the discussion below on pp. 12-13 with regard to measures of the average annual unemployment experience; however, see Akerlof and Main [1981], and Corak [1988*b*].

7 The "C" refers to "cohort of unemployed."

8 This measure, rather than weighting each unemployed respondent equally as does AAE-C, weights them according to the length of time spent unemployed. It is derived from data on the distribution of unemployment as follows:

$[\Sigma(\text{mean})(\%\ \text{total U})] / 100.$

Where the summation is over the duration intervals of unemployment experience, "mean" refers to the average unemployment experience for a particular duration interval, and "% total U" refers to the percentage of the total time spent unemployed accounted for by those in that duration interval. For example, the figure for 1978 is derived from the following data:

Duration interval	Mean	% total U
< 1 month	0.79	6.70
2-3 months	2.25	19.90
4-6 months	4.66	29.52
7-9 months	7.71	22.63
10-12 months	11.16	21.26

9 Corak [1988*b*, pp. 5-17] makes this point in a review of the literature dealing with the average duration of unemployment spells. Chesher and Lancaster [1983] offer a related discussion with a slightly different focus.

10 In fact, this is the conclusion that is also suggested in the examination of the entire distribution of unemployment in the section entitled "The Distribution of Unemployment."

11 In fact, an analysis of unemployment spell lengths derived from the AWPS data conducted by Corak (1990*a*, Table 7) finds that the length of spells for those categorized as "other" was greater than the spell lengths of the "married" group for the period 1982-83, shorter during 1984, and no different during 1985.

12 It may be an oversimplification to suggest that the within-gender changes are more important than the between-gender changes, since the first rows of panels 1a) and 1b) reveal that there have been significant differences in the incidence of unemployment between the genders. Subtracting the data in these rows from 100 yields the incidence of unemployment by gender. Between 1980 and 1982, the male incidence increased from 21.1 per cent to 28 per cent, a rise of 33 per cent, while that of females increased from 23.7 per cent to 28 per cent, a rise of 18 per cent.

13 These ratios reveal a similar pattern when they are calculated for the highest and lowest proportions in panel 2. For the years 1980, 1982, and 1985 they are respectively 3.6, 1.4, and 1.4.

14 Disaggregations by region and gender were also performed. They are available from the author upon request.

15 The co-variates are: 1) gender; 2) marital status (married, single, other); 3) whether the individual is a household head or not; 4) age (the same categories as those in Table 5); 5) education (elementary, high school, some postsecondary, postsecondary graduate, some university); 6) whether the individual claimed to be a student at some point during the year; 7) province (as opposed to the regional categories employed in Table 9); and 8) whether the individual was temporarily laid off at some point during the year.

16 Details on the nature of this procedure are offered in Maddala [1983]. It is preferred to least squares because it is more efficient and because it restricts the dependent variable to lie in the closed interval (0,1), and to probit analysis for computational reasons. A number of specification tests have recently been proposed for such a model but we do not employ them here because of the preliminary nature of the investigation. Davidson and MacKinnon [1984], for example, offer various tests for heteroscedasticity. Least squares estimation was also conducted with the data. In fact, the results did not differ greatly from those reported for the logit model.

17 The reference category used in the actual estimations was a male, that was both married and a household head, aged 35-44, with some postsecondary education, but not claiming student status at any point in the year, living in Ontario, and claiming to be temporarily laid off at some point during the year. The choice of a reference category is necessary for estimation, but it is necessarily a great aid to interpretation. The procedures outlined in Suits [1984] are used to convert these results to make them more easily interpretable. These are the data that are presented in Table 13. For example, in this table the value of 0.121 for Canada in 1980 should be read as: "the probability of long-term unemployment for a non-student claiming to be unemployed at some time during the year and having the average characteristics of the sample is 12.1%." Similarly, the 0.144 figure for males should be read as: "the probability of long-term unemployment for a non-student male having the average characteristics of the sample." Finally, the reader should note that the Appendix lists the actual maximum likelihood estimates, not the probabilities.

18 All of the results in Table 12 and the related figures are point estimates and no regard is paid to their standard errors.

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